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AUTHOR Silins, Halia C.
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ABSTRACT

The last decade has seen accelerating change in Australia in the form of devolution of authority, democratic decision making, school accountability, and central reorganization. This paper presents findings of a study that investigated transformational and transactional conceptualizations of leadership and their usefulness in predicting school outcomes within a context of change and educational reform. Specifically, the study examined the effects of transformational and transactional leadership practices on student-performance outcomes, curriculum outcomes, teacher outcomes, and school culture. Data were derived from a survey that was administered to 291 primary teachers from 58 South Australian schools. Partial least-squares path analysis (PLSPATH) was used to develop a path model. Findings indicate that each of the leadership characteristics--visionary, individual consideration, collaborative problem solving, goal achievement, and ethos--were perceived by teachers to promote particular outcomes. Individual consideration and support and collaborative problem solving made a major difference to teacher outcomes, collaborative problem solving made a major difference to curriculum outcomes, ethos made a major difference to school culture, and goal achievement made a major difference to student performance. The data suggest that if the areas of school performance to be improved can be identified, then the leadership behaviors that are most likely to contribute to the improvement of specific outcomes can also be identified. Two tables and 1 figure are included. Contains 44 references. (LMI)

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LEADERSHIP CHARACTERISTICS THAT MAKE A DIFFERENCE TO SCHOOLS

HALIA C. SILINS
THE FLINDERS UNIVERSITY OF SOUTH AUSTRALIA

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LEADERSHIP CHARACTERISTICS THAT MAKE A DIFFERENCE TO SCHOOLS

Halia C. Silins

The Flinders University of South Australia

The last decade has seen accelerating change in schools in Australia in the form of devolution of authority, democratic decision making, school accountability, and central reorganization (Ridden, 1992). The emergence of self-managing schools in Australia echoes the changes in educational management that have taken place in Britain, Canada and the United States (Caldwell & Spinks, 1992). Such changes have placed new demands on school principals to provide leadership within a complex system that provides self determination within a centrally determined framework. The principal must embrace an active leadership role that promotes and fosters ongoing change as a normal aspect of school life. Although principals do not have a monopoly on leadership, they do have a position of privilege in terms of status, power and mechanisms readily available to them that facilitate school improvement. The significance of the principal in shaping a school and bringing about change has been acknowledged, but there is a need for the nature of this role to be clarified (Reynolds, 1992).

Various conceptualisations of leadership have been promoted, such as the value-added or moral leadership of Sergiovanni (1992), the aesthetic leadership of Duke (1986) and the visionary leadership of Sashkin (1988). The most prominent of these, in recent times, has been that of instructional leadership. A number of North American studies have associated effective schools with principals who are strong instructional leaders (Levine & Lezotte, 1990; Smith & Andrews, 1989) and have proceeded to identify the characteristics that make principals effective instructional leaders. However, the principals' influence on school outcomes and student learning may not be quite so direct (Leithwood & Montgomery, 1986; Murphy, 1989; Silins, 1992). Principals accomplish their role of leadership by shaping contextual factors that create the organisational conditions necessary for school change (Fullan, 1991).

More recently, the failure to institutionalise many of the school change initiatives implemented over the years has been attributed to the almost exclusive focus on first-order changes, changes to core technology (Leithwood, 1994). The generation of curriculum frameworks so popular at present in Australia, North America and Great Britain are examples of such first-order changes. As a conceptualisation of leadership to promote systemic change, instructional leadership has proved inadequate. Instructional leadership, by definition, focuses attention on first-order changes while Fullan (1993), Sarason (1990) and Miles (1993) have emphasised that school restructuring needs both first and second-order changes. In Australia, exhortations toward self-managing schools are second-order change initiatives and require a form of leadership described by Caldwell & Spinks (1992) as "more visionary than managerial, and more artistic than scientific" (p. 20). Under these conditions, effective leadership can be described as transformational rather than transactional in nature (Bass, 1985; Burns, 1978). Transformational leadership refers to the kind of leadership practices advocated to promote educational restructuring and improvement for a changing environment (Bass & Avolio, 1990; Leithwood, 1994; Silins, 1992).

Australian writers have described transformational leadership as involving the leader in the development of a school culture (Beare, 1987; Duignan, 1987a). Other aspects commonly identified are: providing a vision and developing a commitment to the vision (Campbell & Crowther, 1990; McCorley, 1988), developing structures and processes that allow for collaboration and participation (Angus, 1989; Silins, 1994), educating followers to become leaders (Boomer, 1991; Caldwell, 1992; Duignan & Macpherson, 1992), providing opportunities for critical self-reflection (Sungaila, 1990), and considering the needs of followers (Watkins, 1991).

Transactional leadership has not had the same attention in recent times. However, transactional leadership has been associated with the traditionally accepted management techniques and procedures which are seen as incomplete and inadequate in today's environment of change (Duignan, 1987b, 1988). Leaders are compelled to develop new ways of thinking and acting. Sungaila (1990) identified first order changes as transactional implying transformational leadership is required for second order changes involving changing assumptions and beliefs and established organisational practices.

In addressing the responsibilities of school principals, Wilkinson (1987) linked transactional administration skills to systems requirements and accountability. Angus (1986) and Bates (1982) differentiated between transformational and transactional leadership by describing transactional as rational and value free, whereas transformational was concerned with values, meanings and beliefs. Practices associated with transactional leadership are those related to the technical aspects of leadership focussing on efficiency and productivity. They have been described as involving value free, task-oriented transactions, logical rather than emotional in nature, providing rewards and sanctions and concerned with maintaining the *status quo*.

Australian research on educational leadership has focussed on strategies used for school management (Beare, Caldwell, & Millikan, 1989; Caldwell & Spinks, 1992; Duignan, 1987b; Mulford, 1988) and studies of the characteristics of effective principals (Duignan, Harrold, Lane, Marshall, Phillips, & Thomas, 1984; Duignan & Macpherson, 1992; Evans, 1991). However, McGaw, Piper, Banks, & Evans (1992) point out that these studies have not attempted to establish links between the leadership practices of principals and improved school outcomes. This study is one of a series of empirical studies undertaken to investigate transformational and transactional conceptualisations of leadership and their usefulness in predicting school outcomes within a context of change and educational reform. The following research investigates the links between practices identified as transformational and transactional and student performance outcomes, curriculum outcomes, teacher outcomes and school culture. A path model is constructed and tested which hypothesises relationships between a range of leadership practices and school outcomes to determine which leadership practices make a difference.

Method

Data Source

The data for this study was provided by 291 primary teachers from a random sample of 58 South Australian schools. An 106 item questionnaire was constructed in two parts. Part A consists of 62 items generated from leadership constructs relating to transformational and transactional scales of leadership. The Transformational scale was defined by the following constructs: Visionary, Goal Achievement, Intellectual Stimulation, Individual Consideration and Support, Collaborative Problem

Solving and Ethos. The Transactional scale was defined by the constructs of Bureaucratic Orientation and Management-by-exception. The Transformational and Transactional scales consist of constructs drawn from recent Australian perspectives on transformational and transactional leadership found in the literature, as well as constructs associated with a model of leadership originally offered by Bass (1985).

Prior to this study, a 50 item questionnaire was developed representing the Transformational and Transactional scales (Silins, 1993). Data were obtained from a sample of 23 South Australian metropolitan schools providing 458 primary teachers' responses for analysis. Principal factors extraction and oblimin rotation using SPSS Factor (SPSS, 1990) supported six and two factor solutions. Four of the six constructs represented transformational leadership (Goal Achievement, Intellectual Stimulation, Individual Consideration and Support, and Collaborative Problem Solving) and two represented transactional leadership (Technical Orientation and Management-by-exception). Items representing these constructs were incorporated into Part A of the questionnaire used for this study and additional items were included to represent the new constructs of Visionary and Ethos. The construct of Technical Orientation was redefined as Bureaucratic Orientation. The conceptual and operational definitions of the six construct model of transformational leadership and the two construct model of transformational leadership employed here is presented in Table 1.

Part B of the questionnaire consists of 44 items representing the following school outcome measures: Student Performance Outcomes, School Curriculum Outcomes, Teacher Outcomes and School Culture. A Likert scale with five response categories was employed with response options ranging from 'strongly disagree', 'disagree', 'agree' to 'strongly agree' and including 'not applicable'. Table 1 presents the operational definitions of the outcome measures.

Path Analysis

Model building enables the systematic study of underlying concepts in a particular research context and the consideration of the relationships between them. The main aims of developing a path model are : (1) to test the construction of the latent variables from the observed or manifest variables, (2) to examine causality between the constructs of the model, and (3) to estimate the magnitudes of the

hypothesised relationships. Partial least squares path analysis (PLSPATH) was used because it allows the researcher to address these three aims in the one analysis. Partial least squares path analysis was used to confirm the combination of the observed variables into the 12 hypothesised latent variables and to estimate the magnitudes and standard errors of the paths between the 8 predictor variables, or exogenous variables, and the 4 dependent, or endogenous variables. PLSPATH permits the calculation of causal links not only between the latent variables and the outcome measures but also between the explanatory constructs. The analysis was performed using PLSPATH version 3.01 program (Sellin, 1990) calculating jack-knife standard errors for each parameter estimated.

The first step is the development of a path model that hypothesises an outer model consisting of the observed variables (questionnaire items) forming the latent variables or hypothesised constructs, and an inner model which comprises the specified relationships among the latent variables. The hypothesised model contains 106 observed or manifest variables and 12 latent variables (or constructs) listed in Table 1 and represented graphically in Figure 1. Figure 1 depicts the observed or manifest variables (MVs) in summary form in the rectangular boxes and the latent variables (LVs) derived from the observed variables in ellipses. The outwardly directed arrows from the LVs indicate that the MVs reflect, rather than form, the particular construct. As the outward estimation mode was specified in this model, the manifest variable paths are assigned factor loadings and the latent variables are estimated using a principal component or factor analytic approach. The outward mode primarily aims at extracting the common characteristics of the manifest variables in a construct and increasing the internal consistency or reliability of the measure. Table 1 presents the MVs, which form the outer model, with their means, standard deviations, and path estimates.

Procedures

A detailed exposition of the PLSPATH principles and procedures can be found in (Sellin & Keeves, 1994). Path analysis aims at the examination of causal relationships between certain variables that have been established on the basis of theory and logic. PLSPATH provides information indicating the extent to which reality, as represented by empirical data, is consistent with theory. Initial models

are subject to change in the light of data from the real world (Sellin & Keeves, 1994). In refining a model, the principles of parsimony and coherence apply. Parsimony relates to the deletion of insignificant paths and coherence is concerned with justification of an effect in terms of logic and chronology.

Since PLSPATH is an iterative least squares method of analysis it is relatively robust in terms of its distributional assumptions. For refining the model, rules are advanced that do not necessarily involve testing for statistical significance. In this study, a simple random sampling technique was used in selecting schools, but the teachers who responded to the survey did not necessarily represent a random sample. Furthermore, although the 12 constructed latent variables can be assumed to be roughly normally distributed, multivariate normality of the latent variables included in the inner model cannot be assumed.

In refining the paths of both the outer and inner model, paths less than twice their standard error, as estimated by the jack-knife procedure, were considered trivial. In addition, manifest variable paths had to exceed 0.55 to be included in the model. (Falk & Miller, 1992) indicate that the size of the manifest variables paths should be 0.55 or greater so that at least 30 per cent of the variance of the manifest variable is related to its latent variable. Furthermore, path coefficients between latent variables in the inner model had to exceed 0.10 in order to contribute in excess of one per cent of the variance explained of the dependent latent variable involved. In the final model, path coefficients of the inner model were in excess of 0.17 and loadings on the paths between the latent variables and the manifest variables were in excess of 0.57.

The evaluation of a model in PLSPATH analyses is in terms of the proportion of variance explained. PLSPATH also provides the Q^2 statistic, derived as the jack-knife analogue of R^2, which is useful as a test criterion. Model modifications such as the deletion of predictor variables can be evaluated by comparing Q^2 values. The higher the Q^2 the higher the predictive relevance of the model being tested. It should be noted, however, that contrary to R^2, Q^2 values may increase when predictors are deleted.

Results and Discussion

The final model is presented graphically in Figure 1 showing non trivial path coefficients with their jack-knife standard errors in parentheses. Table 2 summarises the data obtained for the final model: the direct effects, the latent variable correlations, jack-knife standard errors and the variance explained of the dependent latent variables.

For the transactional leadership constructs, Bureaucratic Orientation and Management-by-exception, and the transformational leadership construct of Intellectual Stimulation, PLSPATH assigned path coefficients lower than their standard errors. These three constructs failed to contribute to explaining any of the four outcome measures and were eliminated from the model.

Clearly, teachers do not perceive transactional leadership (as defined in this study) as a factor in school change. A leader who is task focussed and policy driven, approaches change independently of followers' concerns and needs, and strives for administrative efficiency is not perceived as contributing to school improvement in student performance, school curriculum, teacher outcomes or school ethos. Less surprisingly, a transactional leader who is passive and concentrates on maintaining the *status quo* is also perceived as inconsequential to school improvement.

The transformational construct of Intellectual Stimulation was also deleted. Although the construct was well defined as a characteristic of transformational leadership, it did not contribute to predicting variations in Student Performance Outcomes, School Curriculum Outcomes, Teacher Outcomes and School Culture. Encouraging inquiry and questioning of one's own and others' assumptions, beliefs and values, together with the promotion of shared understandings of change through intellectual stimulation were not perceived by teachers as significantly associated with school improvement.

Of the eight hypothesised characteristics of leadership included as predictors in the model tested, only five were found to be important influencers of the outcomes measured: Visionary, Goal Achievement, Individual Consideration, Collaborative Problem Solving and Ethos. Visionary leader behaviours only influenced Teacher Outcomes [p=0.20(0.08)]. The Individual Consideration LV also only

contributed to Teacher Outcomes, but it was the most influential predictor of variations in Teacher Outcomes [p=0.42(0.07)]. Leadership behaviours represented by the Collaborative Problem Solving LV significantly influenced Teacher Outcomes [p=0.31(0.08)] as well as Curriculum Outcomes [p=0.32(0.08)] and School Culture [p=0.17(0.07)]. Leader behaviours associated with Goal Achievement were the strongest predictors of Student Performance [p=0.41(0.10)] and influenced Curriculum Outcomes [p=0.23(0.09)] and School Culture [p=0.22(0.09)]. Leadership behaviours concerned with building a school Ethos were the only other influencers of Student Performance [p=0.20(0.10)]. Ethos also made a significant contribution to Curriculum Outcomes [p=0.28(0.08)] and to School Culture [p=0.32(0.10)].

This study has demonstrated that, in the Australian context, transformational leadership characteristics (not transactional) are associated with school improvement. Furthermore, path analysis has clearly indicated which transformational leadership behaviours are significantly associated with particular school outcomes. The final path model indicates no overlap between the kinds of leader behaviours that impact on Student Performance and those that impact on Teacher Outcomes. Teacher Outcomes are most strongly influenced by leader behaviours such as identified by Individual Consideration and Support, then those identified by Collaborative Problem Solving and less strongly by those identified by the Visionary construct. These leadership behaviours explain over three-quarters of the variation in Teacher Outcomes (R^2=0.78 Q^2=0.77) (Table 2) indicating a strong leadership effect on the extent of teacher participation, their productivity, commitment and satisfaction. On the other hand, Student Performance Outcomes are strongly influenced by leadership behaviours identified by Goal Achievement and Ethos. One third of the variance found in Student Performance (R^2=0.35 Q^2=0.34) is explained by these leadership behaviours. Factors associated with student, teacher and classroom characteristics probably contribute to the explanation of a large part of the remaining variance in Student Performance. Nevertheless, the contribution of one-third through leader behaviours such as establishing a shared purpose, mission, a commitment to change and improved performance, as well as a commitment to a cohesive set of values, is a substantial effect on the major purpose of schooling - improving Student Performance Outcomes.

Both School Culture and Curriculum Outcomes are influenced by the same leadership behaviours identified by Collaborative Problem Solving, Goal Achievement and Ethos. A large proportion, 60-70 per cent, of the variance of Curriculum Outcomes and School Culture are explained by the leadership behaviours identified by these constructs.

Conclusion

This study provides empirical evidence for promoting particular leadership behaviours for school improvement. These are conceptually and operationally defined as: Visionary, Individual Consideration, Collaborative Problem Solving, Goal Achievement and Ethos. The path model produced by partial least squares path analysis indicates which of these leadership behaviours are perceived by teachers to promote particular outcomes. Individual Consideration and Visionary behaviours have significant effects that are limited to Teacher Outcomes. Collaborative Problem Solving influences Teacher Outcomes, as well as Curriculum Outcomes and School Culture. The remaining two categories of leadership behaviours, Goal Achievement and Ethos, influence the same three Outcomes, Curriculum, School Culture and Student Performance. Noting the relative strengths of the path coefficients obtained, Individual Consideration and Support and Collaborative Problem Solving make a major difference to Teacher Outcomes, Collaborative Problem Solving makes a major difference to Curriculum Outcomes, Ethos makes a major difference to School Culture, and Goal Achievement makes the major difference to Student Performance.

There are some obvious practical implications for schools from these findings. At a time when school reviews have been established over a number of Australian States and school evaluations are concentrating on outcome measures, discrepancies between the outcomes desired and those achieved can be recognised. The findings from this study indicate that if the areas of school performance to be improved can be identified, then the leadership behaviours that are most likely to contribute to improving specific outcomes can also be identified.

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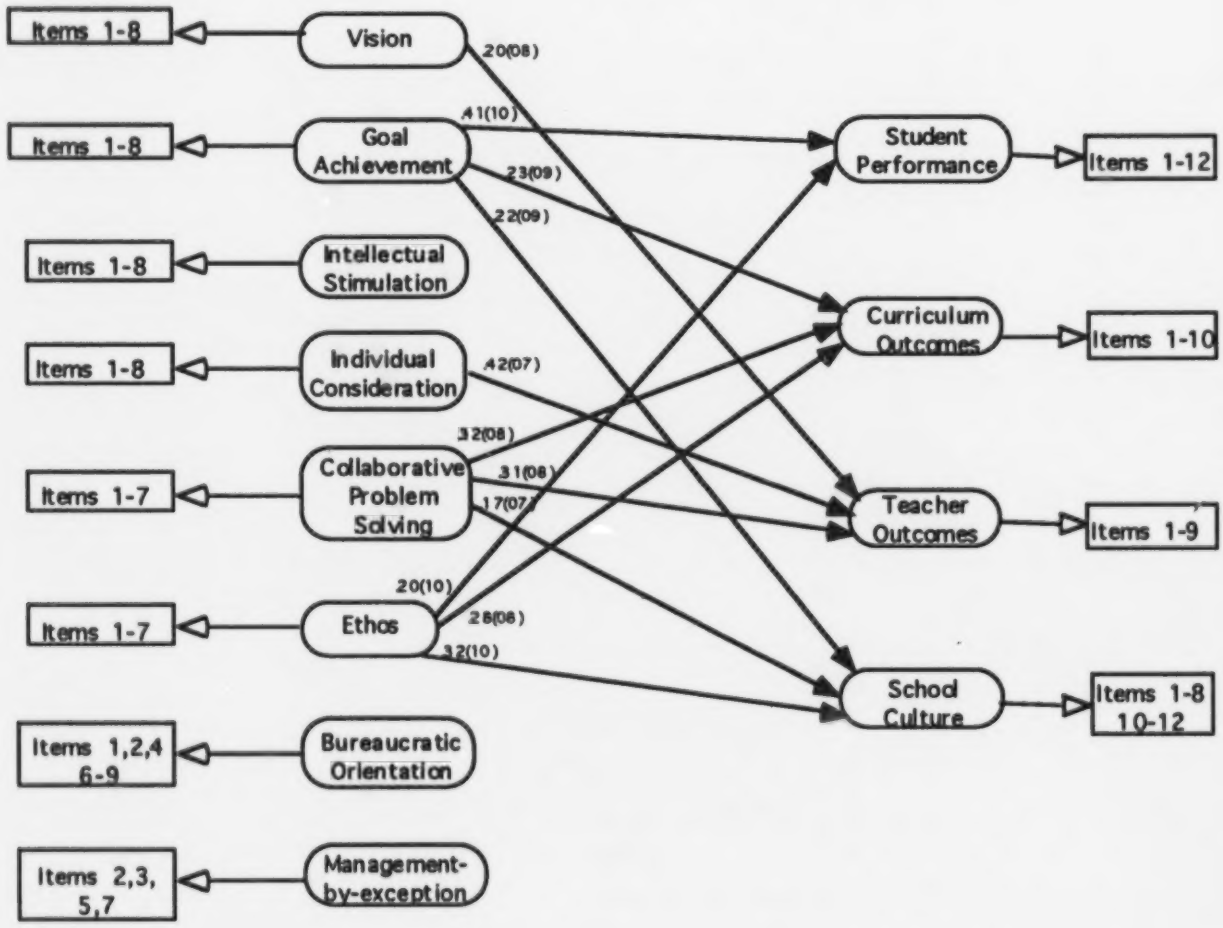

Figure 1 Final model of Leadership Practices that Influence Student Performance, Curriculum Outcomes, Teacher Outcomes and School Culture

Table 1

The Conceptual and Operational Definitions of the Transformational and Transactional Constructs together with the Means, Standard Deviations, and Path Estimates of the Observed Variables

Variables Description and Coding (N=291)	Mean	SD	*PLS Estim
TRANSFORMATIONAL LEADERSHIP			
Visionary -degree to which the leader creates a shared vision that compels commitment and energises people, perpetuates a common understanding of what the school is attempting to achieve for students, teachers and parents and is seen as having the ability to ensure they succeed.			
1. Gives us a sense of overall purpose	2.98	.83	.85
2. Has the capacity and judgment to overcome most obstacles	2.96	.83	.79
3. Has the respect of the teaching staff	2.98	.90	.84
4. Has ideas for the school that excite me	2.65	.98	.87
5. Provides a role model for me to follow	2.71	1.06	.88
6. Takes the long view of how things might be in this school	3.08	.82	.78
7. Looks well beyond existing departmental policies	2.75	.97	.83
8. Has an achievable dream for the school	2.99	.86	.80
Goal Achievement - degree to which the leader helps followers see what is really important for themselves and the organisation, transmits a sense of purpose and organisational mission and builds a commitment to change and improved performance.			
1. Has high expectations for us as professionals	3.25	.77	.81
2. Encourages evaluation of progress toward achievement of goals	2.97	.74	.81
3. Encourages us to work toward the same goals	3.03	.74	.82
4. Does not accept second best in the performance of my work	2.82	.91	.64
5. Provides the support I need to improve my performance	2.94	.94	.82
6. Fosters a commitment to continual improvement	3.09	.87	.85
7. Symbolises success and accomplishment within education	2.85	.90	.77
8. Keeps goals and mission of school to the forefront as a guide	2.97	.75	.82
Intellectual Stimulation - degree to which the leader provides intellectual and problem-oriented guidance, encourages inquiry and shared construction of meanings, encourages questioning of one's own and others' assumptions, beliefs and values and promotes understanding.			
1. Provides information that helps think how implement initiatives	2.91	.87	.85
2. Helps me construct personal meaning of change initiatives	2.76	.93	.85
3. Challenges me to re-examine my basic assumptions about teaching and learning	2.71	.88	.79
4. Provides me opportunities to develop my knowledge and skills	3.06	.83	.79
5. Encourages me to reflect on my work from different perspectives	2.75	.85	.84
6. Encourages the thinking through of equity and values issues associated with implementing the curriculum	2.98	.80	.78
7. Encourages me to plan curriculum content that teaches students inquire, think and communicate	2.94	.92	.82
8. Encourages me to think critically about what I am doing for my students	2.95	.80	.79

Table continues

Table 1 (continued)

Individual Consideration and Support -degree to which the leader is concerned with the individual needs of followers, responds to individual differences in followers' needs and provides resources for growth and development, instils confidence in the individual's ability to perform, delegates projects to stimulate individual learning experiences and recognises effort and achievement.			
1. Offers personal encouragement for my good performance	2.99	1.00	.87
2. Treats me as an individual with unique needs and expertise	3.01	.93	.89
3. Behaves in a manner thoughtful of my personal needs	2.99	.87	.83
4. Has confidence in my ability to perform at my best	3.32	.70	.73
5. Publicly praises work perceived as useful	2.96	.90	.80
6. Instils a sense of belonging	2.91	.86	.86
7. Provides recognition when my work is especially good	2.95	.99	.84
8. Offers me opportunities to develop as a professional	3.08	.83	.79
Collaborative Problem Solving - degree to which the leader is concerned with the individual needs of followers, responds to individual differences in followers' needs and provides resources for growth and development, instils confidence in the individual's ability to perform, delegates projects to stimulate individual learning experiences and recognises effort and achievement.			
1. Works toward consensus of all the staff when establishing priorities for school goals	3.06	.80	.77
2. Uses problem solving with staff when generating school goals	2.81	.89	.82
3. Provides for my participation in developing school goals	3.16	.81	.74
4. Provides me information that encourages dialogue about change	2.90	.87	.81
5. Involves staff in program planning and decision-making	3.26	.77	.83
6. Provides opportunities for cooperative teacher planning to improve instruction	3.05	.86	.73
7. Makes sure we all know what is going on and have a say	2.86	.94	.86
Ethos -degree to which the leader is concerned with building a system of shared values, expectations and behaviours that collectively make up a school's culture.			
1. Builds a positive school climate	3.15	.88	.86
2. Instils pride in the school's successes	3.20	.80	.85
3. Uses celebrations and ceremony to build a school culture	2.92	.79	.72
4. Stresses collegiality	3.09	.79	.70
5. Helps us develop shared norms and values	2.86	.82	.82
6. Builds a sense of knowing how we do things around here	2.92	.81	.79
7. Develops and inclusive atmosphere	2.91	.89	.86
TRANSACTIONAL LEADERSHIP			
Bureaucratic Orientation -degree to which leader is task focussed and policy driven, reactive rather than proactive, approaches change independently of followers' concerns and needs and strives to attain administrative efficiency with the emphasis on management rather than leadership.			
1. Allows administrative expedience to override my involvement in the consultative process	2.39	1.02	.71
2. Empowers the teaching staff more by default than by design	2.33	.95	.81
3. Negotiates rewards for carrying out specific jobs	2.57	1.06	*
4. Lets me take initiatives but does not encourage me to do so	2.35	.88	.58
5. Assures me that I can get what I want in exchange for my efforts	2.73	.98	*
6. Tends to override staff concerns when implementing policy initiatives	2.27	.84	.72
7. Is efficient and effective but does not arouse enthusiasm or commitment	2.15	.87	.59
8. Focuses on daily task of running the school as an end in itself			
9. Is more aptly described as a manager than a leader	2.29	.96	.68
	2.54	.93	.69

Table continues

Table 1 (continued)

Management-by-exception -degree to which the leader provides sanctions for failure to meet agreed-upon standards, avoids giving directions if the old ways are working and allows followers to continue doing their jobs as always if performance goals are met. The leader concentrates on maintaining the *status quo* rather than seizing opportunities for change.			
1. Does not change anything as long as things are going all right	2.64	.94	*
2. Is satisfied with our performance as long as the old ways work	2.19	.91	.75
3. Provides only the information that I have to know to do my job	2.13	.84	.72
4. Adheres to existing rules and procedures as a managing style	2.85	.83	*
5. Asks no more of us than what is absolutely essential to get our work done	2.26	.84	.57
6. Uses rewards and sanctions to influence my performance	2.03	.92	*
7. Comes on the scene only when things are going wrong	2.05	.89	.83
SCHOOL OUTCOME MEASURES			
Student Performance Outcomes			
1. Students are more likely to succeed in their school work in this school.	2.83	.83	.84
2. Students make good progress in their learning.	2.96	.65	.85
3. An increasing proportion of students achieve academically in this school.	2.84	.89	.80
4. Students develop responsible and positive attitudes to their own learning.	2.89	.67	.85
5. Students work cooperatively in this school.	2.86	.72	.76
6. Students are more likely to develop as valued members in society in this school.	2.92	.79	.83
7. Students develop a commitment to learning in this school.	2.76	.73	.86
8. Most students experience satisfaction with their school work.	2.96	.66	.81
9. Students often perform beyond expectation at this school.	2.57	.89	.78
10. Students learn how to learn in this school.	2.92	.71	.80
11. Students are actively engaged in their learning in this school.	3.02	.67	.80
12. Students develop skills in extra-curricula activities as an integral part of their school work.	2.85	.89	.60
School Curriculum Outcomes			
1. Teaching groups meet regularly to ensure coherence of learning programs.	2.69	.94	.75
2. At this school, a curriculum goal is to make knowledge accessible to all students.	3.05	.67	.73
3. We review the balance and comprehensiveness of our curriculum regularly.	2.57	.85	.83
4. We regularly monitor the effects of curriculum choices on students' learning.	2.69	.91	.77
5. There is school-wide curriculum coordination and articulation.	2.58	.95	.81
6. Curriculum innovation is supported in this school	2.96	.82	.74
7. Our school curriculum is flexible and adapts to our own students	2.92	.74	.78
8. Student progress is continually assessed as good curriculum practice.	2.89	.72	.77
9. There is ongoing periodic review of the curriculum in the light of the changing needs of society.	2.78	.77	.84
10. There is regular feedback to parents about where we are heading with the curriculum.	2.86	.79	.76

Table continues

Table 1 (continued)

Teacher Outcomes			
1. I grow and develop professionally in this school.	2.85	.87	.86
2. I feel supported and valued in this school.	2.93	.90	.88
3. I work more collaboratively in this school.	2.75	.90	.75
4. I feel included in the decision making processes of this school.	2.96	.85	.80
5. I seem to achieve success with students here beyond my normal expectations.	2.54	.93	.57
6. My own professional values and goals have become clearer in this school.	2.78	.94	.83
7. I am enthused by the goals and vision driving this school.	2.62	.91	.90
8. My needs and concerns are taken into consideration in this school.	2.87	.81	.84
9. I participate in school-wide staff development activities.	3.17	.65	.63
10. I monitor and self-evaluate my teaching regularly.	3.17	.68	*
School Culture			
1. This school functions collaboratively.	2.86	.83	.81
2. This school is innovative and progressive.	2.64	.90	.79
3. This school recognises and celebrates achievements.	3.01	.81	.78
4. This school has an ethos of fostering students' personal and social development.	3.19	.77	.80
5. I have a sense of pride in what we are doing here.	3.10	.75	.81
6. Students' needs are central to the activities of this school.	3.05	.74	.75
7. This school is guided by a coherent purpose and direction.	2.87	.77	.86
8. This school provides a physically and emotionally safe environment.	2.99	.77	.72
9. This school enjoys strong support from parents and parent groups.	2.94	.80	*
10. Parents are involved in school decisions and the formulation of policy.	2.95	.71	.58
11. Clear and reasonable expectations are established for students and staff.	2.90	.79	.82
12. We all work toward the same ends here.	2.65	.83	.75

*PLSPATH estimates reported as factor loadings for outward mode. Loadings <2 x Se and <0.55 are not reported.

Table 2
Latent Variables: Direct Indirect and Total Effects

Variables	Direct Effects (p)	Jackknife SE	†Corr. (r)
STUDENT PERFORMANCE OUTCOMES			
Goal achievement	.41	.10	.59
Ethos	.20	.10	.56
Variance explained:			
R^2=0.35 Q^2=0.34			
CURRICULUM OUTCOMES			
Goal achievement	.23	.09	.75
Collaborative Problem Solving	.32	.08	.75
Ethos	.28	.08	.75
Variance explained:			
R^2=0.62 Q^2=0.61			
TEACHER OUTCOMES			
Visionary	.20	.08	.82
Individual Consideration and Support	.42	.07	.85
Collaborative Problem Solving	.31	.08	.83
Variance explained:			
R^2=0.78 Q^2=0.77			
SCHOOL CULTURE OUTCOMES			
Goal achievement	.22	.09	.80
Individual Consideration and Support	.19	.11	.79
Collaborative Problem Solving	.17	.07	.78
Ethos	.32	.10	.82
Variance explained:			
R^2=0.71 Q^2=0.70			

† Latent Variable correlations
* Path coefficient r<0.10.
Note: LVs with all paths p<0.10 not reported.